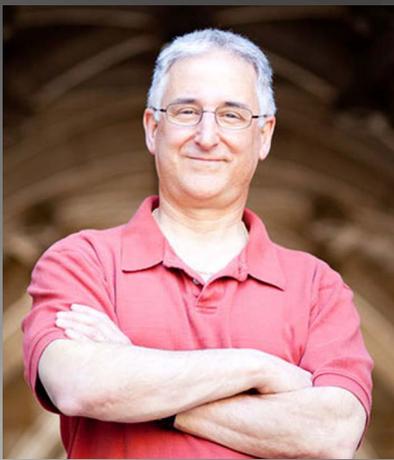




Distinguished Lecture Series

Teaching Computational Abstractions through Musical Abstractions



Monday, November 11th, 2013 10:00am
Auditorium 106 at New IIS Building

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Abstract

Instead of teaching programming with the usual myriad of standard data types – numbers, strings, trees, and so on – and the usual cast of standard algorithms – factorial, Fibonacci, concatenation, and so on – why not use something more interesting, such as music?

Indeed, music has a strong mathematical basis, both at the sound level (scales, overtones, etc.) and at the note level (song form, harmonic structure, etc.). And it has a strong computational flavor, in the sense of algorithmic composition and music analysis.

As part of the Computing and Arts major at Yale, we teach computational abstractions through music, using the pure, mathematically inspired, functional language Haskell. We not only capture standard notions of abstraction (repetition, recursion, data abstraction, and polymorphism), but also advanced ideas (such as lazy evaluation, monads, arrows, and type classes).

In this talk many examples of this pedagogy will be demonstrated, both at the note level and the signal level. It will be a "show-by-example" talk – no knowledge of Haskell or music theory is assumed.

For more information: <http://www.iis.sinica.edu.tw/>

